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Attachments:

DEPARTMENT OF COMMERCE
RESEARCH PERFORMANCE PROGRESS REPORT (RPPR)

[RPPR Guidance](#)
[Award Action Request Guidance](#)

AWARD INFORMATION	
1. Federal Agency: Department of Commerce / NOAA	2. Federal Award Number: NA15OAR4320071
3. Project Title The Cooperative Institute For Marine Ecosystems and Climate (CIMEC) 5-Year Renewal	
4. Award Period of Performance Start Date: July 01, 2015	5. Award Period of Performance End Date: June 30, 2022
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	
6. Last Name and Suffix: Cornuelle	7. First and Middle Name: Bruce D
8. Title: Researcher	
9. Email: bcornuelle@ucsd.edu	10. Phone Number 858-534-4021
AUTHORIZING OFFICIAL	
11. Last Name and Suffix: Park III	12. First and Middle Name: William Thomas
13. Title: Senior Contract and Grant Officer	
14. Email: wparkiii@ucsd.edu	15. Phone Number 858-822-1350
REPORTING INFORMATION	
Signature of Submitting Official: William Thomas Park	
16. Submission Date and Time Stamp: 2020-04-17 00:00:00.0	17. Reporting Period End Date: March 31, 2020
18. Reporting Frequency: <input checked="" type="radio"/> Annual <input type="radio"/> Semi-Annual <input type="radio"/> Quarterly	19. Report Type: <input checked="" type="radio"/> Not Final <input type="radio"/> Final
RECIPIENT ORGANIZATION	
20. Recipient Name:	

UNIVERSITY OF CALIFORNIA SAN DIEGO	
21. Recipient Address: 8622 DISCOVERY WAY RM 116, LA JOLLA, CA 92093-1500 USA	
22. Recipient DUNS: 175104595	23. Recipient EIN: 956006144
ACCOMPLISHMENTS Guidance	
24. What were the major goals and objectives of this project?*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;">Please see attachment</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
25. What was accomplished under these goals?*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;">79 Core Argo floats were fabricated, shipped, and deployed by R/Vs Ride, Sonne and Kaharoa. 10 Deep Argo floats were fabricated, shipped, and deployed in regional pilot arrays by R/V Kaharoa. Continued float technology advancement activities were performed in order to increase float lifetime, improved calibration, and communication of floats, including improvements to bottom encountering behavior on deep floats and the integration of the RBR CTD.</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
26. What opportunities for training and professional development has the project provided? *	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;">CalCOFI regularly hosts student volunteers, graduate students and postdocs on research cruises. These opportunities provide unique opportunities to gain ship-based research experience. HFRNet project hosted a demonstration for data access of the near real-time total vector surface currents for advancing research</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
27. How were the results disseminated to communities of interest?*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;">In addition to the datasets that have been put online, publications listed elsewhere, scientific talks, public and stakeholder meetings, interviews, workshops, and symposia, here is a summary of selected dissemination achievements: Software has been made continuously available through the open source hosting platform GitHub, along with wiki guides</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
28. What do you plan to do during the next reporting period to accomplish the goals and objectives?*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;">All continuing projects plan to maintain and, where possible, improve their planned operations. This includes observing systems; data quality; timely, web-accessible data access; algorithm and ML systems development and dissemination; collaborations with national and international marine science, conservation, and management communities; to facilitate the use of their data locally, nationally, and internationally to advance science and inform decisions in marine resource management and policy. They will</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
PRODUCTS Guidance	
29. Publications, conference papers, and presentations*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;"> Nothing to Report <input type="checkbox"/> Please see attachment </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
30. Technologies or techniques*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;"> Nothing to Report <input type="checkbox"/> Please see attachment </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	
31. Inventions, patent applications, and/or licenses*	
<div style="border: 1px solid black; min-height: 40px; padding: 5px;"> Nothing to Report <input checked="" type="checkbox"/> Nothing to report </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <input style="width: 80px; height: 20px; border: 1px solid black;" type="text"/> Spell Check </div>	

32. Other products*

Nothing to Report ☐

Please see attachment

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PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

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33. What individuals have worked on this project?*

Bruce Cornuelle, Director of CIMEC, UCSD/SIO
Mark Brzezinski Partner Lead, UC Santa Barbara
Pete Raimondi, Partner Lead, UC Santa Cruz
John Largier, Partner Lead, UC Davis

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34. Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?*

Nothing to Report ☐

No

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35. What other organizations have been involved as partners?*

Nothing to Report ☐

Please see attachment

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36. Have other collaborators or contacts been involved?*

Nothing to Report ☐

Dr. Emily Bockmon, California Polytechnic, San Luis Obispo
Dr. Francisco Chavez, MBARI
Dr. Philip Sutton, National Institute of Water and Atmospheric Research, New Zealand
Dr. Pierre Flament, University of Hawaii

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IMPACT

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37. What was the impact on the development of the principal discipline(s) of the project?*

Nothing to Report ☐

Please see attachment

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38. What was the impact on other disciplines?*

Nothing to Report ☐

Argo data is used across the earth sciences. Recent uses outside physical oceanography include studies of storm tracks, atmospheric water transport, ocean deoxygenation, biology of reef systems, primary production, anthropogenic carbon sequestration, ice-ocean interactions, glacier melting dynamics, sea ice predictability, and weather forecasting. Advances in Core Argo float technology contribute to other autonomous platforms (e.g. BGC floats and gliders) and has been used to inform the

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39. What was the impact on the development of human resources?*

Nothing to Report ☐

In addition to the educational, training, and professional development components of CIMEC projects detailed in other entries, undergraduates, graduate students, and postdocs receive practical training in NOAA-related fields and find employment with NOAA.

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40. What was the impact on teaching and educational experiences?*

Nothing to Report ☐

Most of the projects gave experience to undergraduates, graduates, and postdoctoral researchers, both formally and informally. A number of labs hosted REU students. Many aspects of CIMEC science are used in lectures by the PI's in classes, seminars, and public venues. Some selected specific examples are detailed in the following.

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41. What was the impact on physical, institutional, and information resources that form infrastructure?*

Nothing to Report ☐

The geodesy project has had widespread impact by facilitating the online use of geodetic control and reference frames by a large user community and increased opportunities for young scientists in Federal government agencies such as NGS.

CalCOFI supports ship based observational science (and the ships that carry out such observations) along the west coast of the

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42. What was the impact on technology transfer?*

Nothing to Report ☐

Please see attachment

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43. What was the impact on society beyond science and technology?*

Nothing to Report ☐

The multi-decadal, multi-variate ocean data sets taken, maintained, and served by CIMEC are used for basic research in the ocean/climate system to understand the dynamics of the coupled ocean, atmosphere, land, and ecosystem and assess the state of the global and regional oceans. This basic research is applied in global and regional models for understanding and prediction of the economic and human impacts related to variability in the state of the oceans, such as carbon, sea level, hurricanes, or

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44. What percentage of the award's budget was spent in foreign country(ies)?*

Enter percent 0 %

Enter explanation :

less than 1%

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CHANGES/PROBLEMS [Guidance](#)

45. Changes in approach and reasons for change*

Nothing to Report ☐

Dickson: there have been no changes in approach/ however, the partial support for Mr. Canyon Breyer was an addition to the originally proposed research, but encouraged by OAP.
Roemmich: PI Roemmich formally retired from UCSD in October 2019. Roemmich remains the lead PI of Argo through UCSD's Recall to Active Duty Appointment, with increasing roles played by PI's Purkey, Zilberman and Gilson.

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46. Actual or anticipated problems or delays and actions or plans to resolve them*

Nothing to Report ☐

Dickson: Dr. Bockman was unavailable due to her extensive teaching responsibilities till recently. I too was partially overwhelmed teaching on-line in Spring 2020. Hence the delay in preparing our report for publication. It is now moving ahead.
Semmens: The pandemic remains. Our upcoming Summer cruise (mid-July) is currently scheduled to sail, but with added precautions such as early technician isolation and testing, reduced staffing, and social distancing protocols during the ship

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47. Changes that had a significant impact on expenditures*

Nothing to Report ☐

Dickson: During much of the time Ms. Nestory was unable to be in the laboratory working on this project, she was acting as a graduate teach assistant supported predominantly by UCSD (and not this grant). We are now moving ahead with only a small amount of excess expenditure.
Rudnick: So far, we are surviving the COVID pandemic without an effect on expenditures. But the threat remains.

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48. Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents*

Nothing to Report ☒

None

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49. Change of primary performance site location from that originally proposed*

Nothing to Report ☒

None

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PROJECT OUTCOMES

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50. What were the outcomes of the award?*

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